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# TURKEY RAISING

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FARMERS' BULLETIN 791

UNITED STATES DEPARTMENT OF AGRICULTURE

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Contribution from the Bureau of Animal Industry  
A. D. MELVIN, Chief

**TURKEY RAISING**, as ordinarily engaged in, is a side line upon the general farm. For those who are favorably situated for raising turkeys, a more profitable side line can hardly be found. Plenty of range is essential to success.

The most widely known turkey is the Bronze, after which come the White Holland, the Bourbon Red, the Black, the Narragansett, and the Slate.

One of the most important steps toward success in turkey raising is the proper selection of breeding stock. Birds for breeding should be selected for vigor, size, shape, strong bone, early maturity, and color of plumage.

Turkey hens will usually lay about 18 eggs in their first litter, while those that do not have to be set can be broken up on becoming broody and made to lay a second and sometimes a third litter.

The high mortality common in young poults is usually due to some of the following causes: Exposure to dampness and cold; improper feeding; close confinement; lice; predatory animals; weakness in the parent stock.

During the summer and early fall turkeys can find an abundance of feed on the average farm. About October 1 it is advisable to begin fattening them for market, giving only a little feed at first and gradually increasing this until the birds are marketed. The marketing season for turkeys is very short, running only from the middle of November to the latter part of December.

Of the infectious diseases of turkeys, blackhead is the most destructive. It is notable that whenever the climate and range conditions are such as to permit of the turkeys foraging for most of their feed from the time they are hatched until they are marketed, cases of blackhead are infrequent. No positive cure for blackhead has been found, but free range and care not to overfeed are very important factors in raising turkeys successfully.

# TURKEY RAISING.

## CONTENTS.

	Page.		Page.
The turkey industry in the United States..	3	Brooding.....	16
Profits from turkey raising.....	4	Fattening for market.....	21
Varieties.....	4	Caponizing.....	22
Management of breeding stock.....	8	Marketing.....	22
Incubation.....	13	Diseases.....	24

## THE TURKEY INDUSTRY IN THE UNITED STATES.

**T**URKEY RAISING, as ordinarily engaged in, is a side line upon the general farm. Throughout the Middle West, where most of the turkeys are raised, it is unusual to see a flock of more than 50 on any farm, although in Texas, where more are produced than in any other State, flocks of several hundred are rather common. In sections of the Southwest and on the Pacific coast a few persons have engaged in turkey raising on a large scale, raising a thousand or more every year. There are not, however, turkeys enough raised on the Pacific coast to supply the local demand; this is true also of the Atlantic Coast States. The production in New England, once famous for its turkeys, is very greatly reduced.

For several reasons the number of turkeys in the United States is decreasing. According to the census of 1900 there were in the United States at that time

6,594,695 turkeys, while by 1910 the number had decreased to 3,688,708. Poultry dealers throughout the country state that the decrease has continued ever since the last census. The principal cause of the decrease is that as the population of the country increases farming becomes more intensive, and every year the area of range

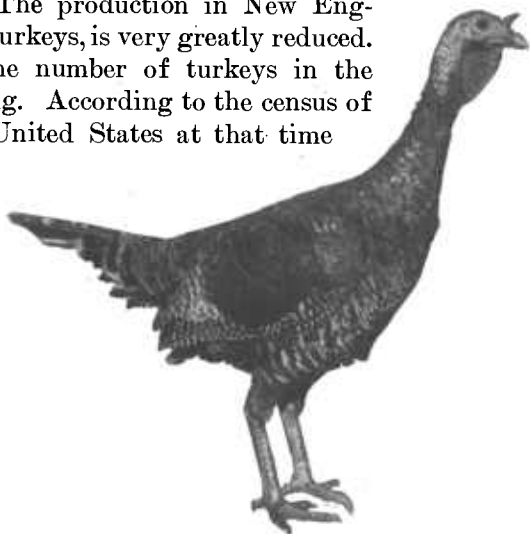


FIG. 1.—Bronze turkey hen. (The male is shown on the title page.)

suitable for turkey raising is reduced. Many turkey raisers have given up the business principally because their turkeys range through the grain fields of adjacent farms and thus cause the ill will of the owners thereof. Furthermore, the high mortality among young poults as ordinarily cared for on the farm, the outbreaks of disease, particularly of blackhead, among the turkeys in certain sections of the country, together with serious losses resulting from the presence of predatory animals in other sections, have tended greatly to discourage the turkey industry.

### PROFITS FROM TURKEY RAISING.

For those who are favorably situated for raising turkeys a more profitable side line can hardly be found. Given plenty of range, turkeys will readily find grasshoppers and other insects, green vegetation, the seeds of weeds and grasses, waste grain, and acorns and nuts of various kinds. In this way the cost of raising them is very small and the profits large. Grain and stock farms are particularly well adapted for turkey raising, and it is on such places that most of the turkeys are found. Plenty of range is essential to success in turkey raising. Little has ever been done in the way of raising turkeys in confinement, and when it has been tried the results have been discouraging.

The average price received by the producer for live turkeys ranges from about 12 cents a pound in Texas to 25 cents in parts of New England. During November and December, 1915, the price averaged about 13 cents in Tennessee, 13½ in Mississippi, 14½ in Missouri, 17 in Ohio, 20 in California, and 21 in New York.

### VARIETIES.

All domestic varieties of turkeys are descended from wild turkeys originally found in North America from New England to Arizona and Florida and still found in the more unsettled sections of their former range, particularly in the mountainous parts of Texas, New Mexico, and Arizona, and in the large swamps and hummocks of the Gulf States. Wild turkeys differ somewhat in color, the extreme of which is shown by the Mexican wild turkey found in Arizona, New Mexico, western Texas, and northern Mexico, and the common wild turkey (fig. 7), found in the eastern part of the United States. These two varieties differ in that the eastern turkey is of a brilliant copperish bronze, with the tips of the tail coverts and main tail feathers yellowish-brown, while the Mexican turkey is of a darker color, the bronze being shaded with black and the tips of the tail coverts and main tail feathers white.

Another species of wild turkey, found in Central America and known as the Honduras turkey, is quite distinct from the North American species. This turkey is of beautiful plumage, the general color being bright green, shaded with blue, red, bronze, and black. It is somewhat smaller than the North American wild turkey and has never been domesticated to any great extent.

Six varieties of domestic turkeys are recognized by the American Standard of Perfection. Of these by far the most widely known is the Bronze (see illustration on title page and fig. 1), after which come the White Holland (fig. 2), the Bourbon Red (fig. 3), the Black (fig. 4), the Narragansett (fig. 5), and the Slate (fig. 6).

In color the Bronze turkey is of a rich, brilliant, copperish bronze against a background of black and brown and contrasted by the clear-white tips of the tail coverts and main tail feathers. When wild blood has been introduced, however, the tips of the tail feathers are yellowish brown rather than white. The Bourbon Red is of a deep brownish red, with white wings and tail. The White Holland is pure white. The Black turkey is of a lustrous greenish black throughout. The color of the Narragansett is steel gray against a background of black. The Slate turkey is of a slaty or ashy blue color, more or less dotted with black.<sup>1</sup>

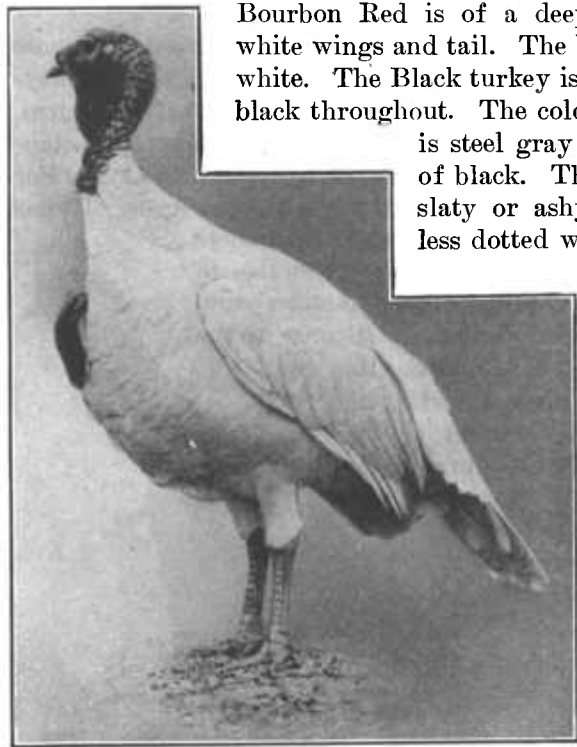


FIG. 2.—White Holland turkey, male.

By judicious breeding, turkeys have increased markedly in size since domestication. The wild turkeys of to-day average in weight about 12 pounds for young toms and 8 pounds for young hens, while the standard weight for the Bronze variety is 25 pounds for young toms and 16 pounds for young hens. As a

matter of fact, however, in sections where little or no attempt has

<sup>1</sup> For detailed description of the different varieties of turkeys, see the American Standard of Perfection, published by the American Poultry Association.

been made to breed turkeys up to a high standard the weight of the ordinary run of turkeys does not average more than that of the wild ones.

The standard weights of the different varieties of turkeys as given in the American Standard of Perfection are as follows:

*Standard weights of turkeys.*

Variety.	Adult cock (2 years old or over).	Yearling cock (1 year old and less than 2).	Cockerel (less than 1 year old).	Hen (1 year old or over).	Pullet (less than 1 year old).
	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>
Bronze.....	36	33	25	20	16
Bourbon Red.....	30	25	20	18	12
Narragansett.....	30	25	20	18	12
White Holland.....	28	24	20	18	14
Black.....	27	22	18	18	12
Slate.....	27	22	18	18	12

**SELECTION OF A VARIETY.**

Owing to the fact that the Bronze turkey is the heaviest, it is more popular among turkey raisers than the other varieties. Since turkeys are sold by weight, the heaviest birds bring the greatest returns. When a large number of people are to be served, as in hotels, restaurants, and boarding houses, the demand is for heavy turkeys. For family use the demand is for small or medium-sized birds. Unless they are to be marketed locally among customers who demand small birds, it is far more profitable to raise the heaviest. Regarding other characteristics, it is quite generally asserted that the Bronze is the hardiest variety; that the Bourbon Red and White Holland are the most domestic; and that the White Holland is the most prolific. These qualities are possessed in different degrees by individuals of every variety, however, and can be developed by proper management and careful selection of breeding stock.

**SELECTION OF BREEDING STOCK.**

One of the most important steps toward success in turkey raising is the proper selection of breeding stock. Unhatchable eggs, weak poults, and

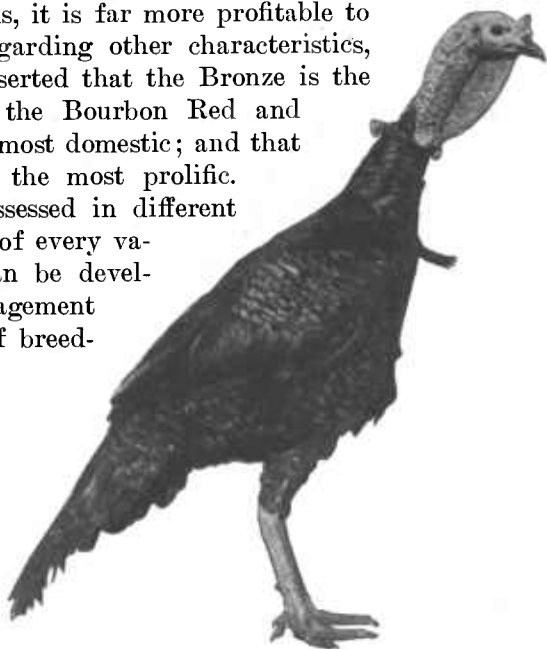


FIG. 3.—Black turkey, male.

small, scrubby turkeys are largely the result of carelessness in the selection of the parent stock. In selecting turkeys for breeding purposes, strength and vigor are the first points to be considered. To indicate this the body should be deep and wide, the back broad, and the breast round and full. The head should be of good size, and of a clean, healthy appearance. A strong, well-made frame is shown by thick, sturdy shanks and straight, strong toes.

Breeders of pure-bred turkeys select their breeding stock for vigor, size, shape, bone, early maturity, and color of plumage. It should be the aim of every turkey grower to have a flock of pure-bred turkeys, even though they are sold at market prices. The cost of raising pure breeds is no more than that of mongrels, and the profit is much greater. By all means the male at the head of the flock should be a pure-bred bird of the best type obtainable. He is one-half the entire flock, and by continually selecting the best females of a similar type and mating them with a pure-bred male one can soon have a flock of uniformly large, early maturing, strong-boned, long and deep-bodied turkeys of the same color that will bring better prices on the market than mongrels, because they will be of greater size and better fleshing qualities. Aside from the greater market value of pure-bred turkeys there is also an excellent opportunity of selling the best birds for breeding stock at increased prices. The demand for pure-bred turkeys is good and as soon as their reputation is established breeders of high-class birds have little difficulty in disposing of them.

Inbreeding is harmful and if carried on very long will result in the loss of vigor and vitality. It is therefore advisable each year to obtain a new tom of unrelated blood, but of the same type. Nothing is to be gained by crossing varieties, as such practice soon reduces pure breeds to mongrels.

As to the best age for breeding stock, most turkey breeders prefer to mate a vigorous, well-grown young tom (cockerel) with early hatched young hens (pullets) or with yearling hens. Early hatched turkeys are in most cases

sufficiently mature to be used as breeders their first season, but in no case should late-hatched or slow-growing birds be kept for breeders. An excellent plan is to keep as breeders each year one-half yearling hens and one-half early

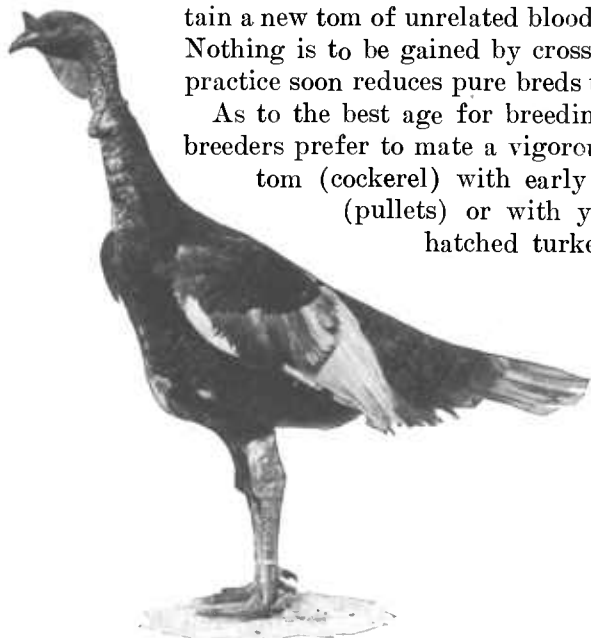


FIG. 4.—Bourbon Red turkey, male.



hatched pullets, and mate them with a well-developed and vigorous early hatched cockerel. Yearling toms can be used if desired, but, owing to their greater weight and clumsiness, they are liable to injure the hens. Should a yearling or older tom be used, care should be taken to pare off the spurs and file the sharp points from the nails. After the third year the egg production of turkey hens begins to fall off and it is advisable to replace them with younger stock.

The most satisfactory time of year to select breeding stock is November or December. By purchasing early in the season one not only has a larger number to choose from, but the birds are given ample time to become acquainted with their new surroundings before the mating season, which in the South ordinarily begins early in February and in the North about a month later.

### MANAGEMENT OF BREEDING STOCK.

Fifteen turkey hens can safely be mated to a vigorous tom. If 25 or 30 hens are kept, two toms should not be allowed to run with them at the same time, but one should be confined one day and the other the next. When two toms are allowed to run together during the mating season, they fight fiercely, and the stronger does practically all the mating.

When only a few turkeys are kept it is the usual custom to allow them free range throughout the breeding and laying season. This is undoubtedly a good plan, provided the nests are found and the eggs gathered daily, if there is danger of their being destroyed or chilled. If many turkeys are kept, however, it is usually found most convenient to use breeding pens or inclosures. These should be of sufficient size to afford some exercise, an acre for 15 turkey hens being none too large. By taking turns in the use of three toms, as many as 45 turkeys may be kept in one inclosure, one tom being used every third day, or, better yet, one can be used in the morning, another in the afternoon, and a third the following morning. It is an excellent plan to allow the birds to roost outside the pen, turning them out late in the afternoon, after they are through laying, and driving them in early the following

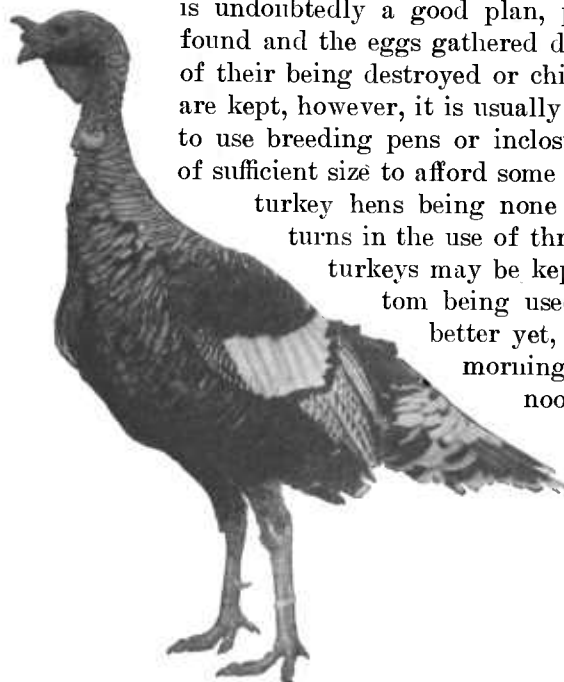


FIG. 5.—Narragansett turkey, male.

morning. Turkeys are easily handled, the work of driving them into the pen every morning requiring but a few minutes if they are fed there regularly, and the exercise they get while ranging outside the pen helps to keep them in good condition.

The construction of a turkey pen is simple. Very often the family orchard is utilized for this purpose. A hog-proof wire fence 3 feet high (fig. 9) will hold most turkeys if the pen is large enough to keep them contented and if the hens are put into the pen before they have selected nesting places outside.

Should any persist in flying out the flight feathers from one wing can be cut or a paddle fastened across the back by tying with a strip of cloth under each wing, so that when the wings are raised they strike against the paddle and flight is prevented (see fig. 10).

Turkey hens that have made their nests before

they are put into the pen will make every effort to get out whenever they want to lay, and if they do not succeed they will often hold the first egg or two as long as possible and then lay wherever they happen to be. Within two or three days, however, they usually select a nest in the pen and there lay the remainder of the litter.

Rail, board, or stone fences are of no value for confining turkeys, which easily fly on top of them and then jump down on the other side. In the case of a wire fence, however, there is no place on which to alight, and under ordinary circumstances they do not make the attempt. For this reason steel posts are better than wooden posts for a turkey fence unless the latter are sharpened at the tops.

#### FEEDING THE BREEDING STOCK.

Good breeding condition means being well fleshed, but not fat. Given free range where there is ample supply of natural feed during the winter and early spring, such as is usually the case in the southern portion of the United States, a good daily feed of grain, preferably oats or wheat, is sufficient to keep the birds in good condition. The natural feed of turkeys at this time of the year consists largely of grass, tender buds, young leaves, insects, and nuts and seeds of various kinds. During the winter northern turkey raisers usually feed twice a day on equal parts of oats, wheat, and corn, with vegetables such



FIG. 6.—Slate turkey, male.

as potatoes, turnips, beets, and cabbage as a substitute for green feed. Animal feed at that time of year is essential to the best results, and can be supplied by feeding meat scrap, beef livers and lungs, or skimmed milk, either sweet or sour. If confined in a breeding pen, green feed can be supplied by sowing the pen to grass, oats, wheat, barley, clover, alfalfa, or some such crop. Wheat and hulled oats are the best grains to feed, corn being too fattening unless fed in connection with other grains. Free access to grit, charcoal, and shell-forming material, such as oyster shells, is necessary throughout the breeding and laying season.

#### HOUSING BREEDING STOCK.

During cold winter weather, such as prevails in the northern States, a few turkey raisers provide roosting sheds, but the great ma-

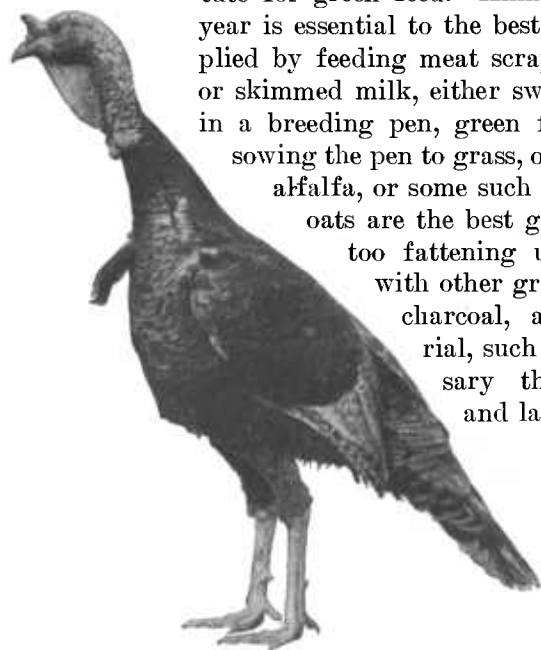


FIG. 7.—Wild turkey, male.

majority allow their turkeys to roost in the open, usually in trees, throughout the year. There is little need of a regular turkey house, but during damp, icy weather and during stormy winds the turkeys should be driven into a barn or shed. They can stand a reasonable degree of dry cold, but they should not be exposed to dampness and cold at the same time.

#### LAYING.

Soon after mating turkey hens begin to look for nesting places and usually commence laying in from a week to 10 days after the first mating. One mating is sufficient to fertilize all the eggs of one litter, but the hens ordinarily mate 3 or 4 times before beginning to lay. All turkey hens, of course, do not begin laying at the same time, and in a flock of about 15 it may be 6 weeks or more from the time the first hen begins to lay until the last begins. Pullets usually commence laying a little earlier than yearlings or older hens. The average number of eggs in the first litter is about 18, although in individual hens it may vary from 12 to 30. Hens that do not have to be set can be broken up on becoming broody and made to lay a second or a third litter. The number of eggs laid in the second litter averages about 12, and in the third about 10, although there is considerable variation in the egg production of different hens. Some turkey hens can be made to lay 4 or 5 litters, but this is not usually

advisable, as poults hatched later than June do not have a chance to develop for the Thanksgiving and Christmas markets and are not sufficiently mature by the following spring to be used as breeders. A hen that begins laying in the middle of March will usually finish laying her first litter early in April, her second litter late in April, and her third litter about the third week in May, depending upon the number of eggs she lays and the promptness with which she is broken up on becoming broody. Hens that are allowed to hatch and raise a brood of poults after laying their first litter often begin laying again in the fall, but poults hatched at that time are of little value, as they require too much care and attention to carry them through the winter. Fall-hatched pullets begin laying late the following spring, but they are immature at that time and poults hatched from their eggs do not develop into large, strong birds as do poults from mature stock.

Turkey hens can easily be broken of their broodiness by confining them for 2 or 3 days to a coop with a slat bottom. They will mate soon after being let out of the coop and begin laying in about a week. The first 2 or 3 eggs of a litter are usually laid at the rate of one every other day, after which the hens ordinarily lay every day until they are broody, although sometimes they skip one day before laying the last egg of a litter. There is no particular time of day when a turkey hen lays, but most of the eggs are laid in the morning. The following dates of laying and lengths of time remaining on the nest were obtained by watching a turkey hen during the laying season, and are typical:

Date.	Time of laying.	Time leaving nest.	Date.	Time of laying.	Time leaving nest.
Mar. 27.....	3.00 p. m.....	4.00 p. m.....	Apr. 6.....	9.00 a. m.....	2.00 p. m.....
Mar. 29.....	11.00 a. m.....	1.00 p. m.....	Apr. 7.....	9.00 a. m.....	3.00 p. m.....
Mar. 31.....	8.30 a. m.....	10.00 a. m.....	Apr. 8.....	10.00 a. m.....	4.00 p. m.....
Apr. 1.....	11.00 a. m.....	1.00 p. m.....	Apr. 9.....	10.30 a. m.....	4.00 p. m.....
Apr. 2.....	4.00 p. m.....	5.00 p. m.....	Apr. 10.....	10.00 a. m.....	6.00 p. m.....
Apr. 3.....	11.00 a. m.....	12.30 p. m.....	Apr. 11.....	10.00 a. m.....	6.00 p. m.....
Apr. 4.....	8.30 a. m.....	9.30 a. m.....	Apr. 12.....	<sup>1</sup> 7.30 a. m.....	.....
Apr. 5.....	9.00 a. m.....	3.00 p. m.....	Apr. 14.....	( <sup>2</sup> ).....	.....

<sup>1</sup> Sitting.

<sup>2</sup> Date of laying last egg.



FIG. 8.—Breeding flock of Bronze turkeys on free range.

## FINDING THE HIDDEN NEST.

Given free range, turkey hens usually secrete their nests in obscure places, such as patches of weeds, tall grass, or bushy thickets, and often wander a half-mile or more from home before they find places that suit them. To find these "stolen" nests (as they are usually termed) is often a long and tedious task, the usual method being to follow each turkey hen as she separates from the flock and starts toward her nest, taking care that she does not know she is observed. A much easier and quicker method than this is to confine the hens early some morning soon after they have come down from roost and let them out late in the afternoon. Those that are laying will then head straight for their nests in order to lay the eggs they have been holding.

If attractive nesting places are prepared about the barnyard, turkey hens sometimes lay in them. In the North, where the laying season often begins while there is still snow on the ground, they are more likely to select their nests near home than is the case in the South, as they do not range far during cold weather. Nests are easily made from boxes or barrels, or by scooping out a little earth in the shape of a shallow bowl and piling brush around it to satisfy the hen's desire for seclusion. Of all nests, however, the one most preferred by turkey hens is a barrel laid on its side and a nest shaped in it with straw or hay. When confined to a breeding pen several turkey hens often lay in the same nest, but on free range each hen usually makes her own nest.



FIG. 9.—Breeding and laying pen or inclosure; hog-proof wire fence 3 feet in height.

## CARE OF EGGS.

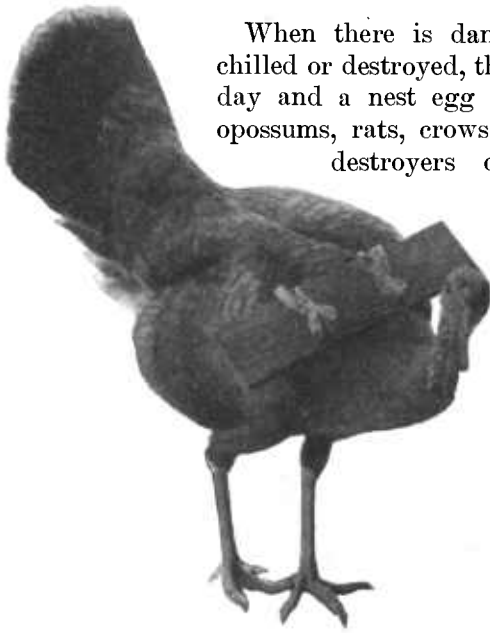


FIG. 10.—Paddle used to prevent turkey hens from flying over fence.

When there is danger that the eggs may be chilled or destroyed, they should be gathered every day and a nest egg left in each nest. Skunks, opossums, rats, crows, and dogs are the greatest destroyers of turkey eggs, although minks, raccoons, coyotes, wolves, foxes, cats, and certain large snakes are also egg eaters. Often, when a turkey hen has been disturbed by one of these pests, she changes her nest to some other place.

Eggs for hatching should be kept at a temperature of as near 50° or 60° F. as possible and should be turned over every day. They should be jarred as little as possible while handling and should be incubated while still fresh, never

holding more than two weeks if it can be helped. It is an excellent plan to mark the date on each egg as it is gathered, in order to be certain that no eggs are kept too long before they are incubated.

## INCUBATION.

Turkey hens and chicken hens are ordinarily used to incubate turkey eggs, although incubators are quite generally used where turkeys are raised on a large scale. During the early part of the laying season it often happens that there are on hand a number of eggs that should be set before any of the turkey hens are through laying their first litter and become "broody." In such case and also, when it is desired to have the turkey hens lay a second or third litter, some of the eggs have to be incubated under chicken hens or in an incubator. About a week before the poults are to hatch a sufficient number of turkey hens should be allowed to sit to take all the poults hatched. They can be given a few eggs from the incubator or from under the chicken hens and allowed to hatch the poults themselves, or at night a newly hatched poult can be slipped under each turkey hen that is to be given a brood of poults and by morning they will take them.

Turkey hens are very close sitters, and if managed properly they are the surest means of hatching turkey eggs that can be used. In-

cubators, however, are quite as successful with turkey eggs as with chicken eggs. Poor hatches are a very frequent cause of complaint among turkey raisers, and this is quite often due to crowding more eggs under the hens than they can properly cover. One egg too many means that every egg in the nest will probably become chilled at some time during the four weeks of incubation. Turkey hens cover from 15 to 18 eggs and in some cases more, depending on the size of the hen. Chicken hens of the general-purpose breeds cover from 8 to 10 eggs.

The turkey-egg capacity of an incubator is approximately three-fourths of the chicken-egg capacity.

Nests for setting turkey and chicken hens are best made on the ground by hollowing out a little earth, so that the center is deep enough to keep the eggs from rolling out of the nest. A thin covering of clean straw or hay can then be used to prevent the eggs



FIG. 11.—Coop used for turkey hen while sitting.

from being directly on the ground, and a large roomy coop should be placed over the nest to keep the hen from being disturbed (fig. 11). When a number of hens are to be set, a long row of nests (fig. 12) can easily be made on the ground, separating them with board partitions. If this is done care must be taken to see that when the hens come off the nests each returns to the right one instead of crowding into a nest with another hen and leaving some of the eggs to become chilled. With only a few hens it is better to set them some distance apart, as they will then require less attention.

When a hen becomes broody and shows that she is in earnest by remaining on her nest for two or three nights, she may safely be trusted with the eggs, provided she is allowed to sit in that nest. If she is to be set in another nest, as is usually the case, then she should be removed to the new nest, preferably after dark, given a few nest eggs, and shut in to prevent her from returning to the old one. If she sits quietly on the nest eggs she should be taken off on the evening

of the following day and the eggs to be incubated placed in the nest. On being freed, she will probably return to her old nest; if so, she should be carried back and set quietly on the eggs, when she will immediately feel them beneath her and settle down to cover them. She should be handled in this manner until on being let off she returns to the new nest rather than to the old one. It sometimes takes but two or three days, and seldom more than a week, to break a hen from returning to her old nest. Turkey hens do not ordinarily come off for feed and water more than once every 2 or 3 days, but when confined they should be given an opportunity to come off every day. Occasionally a turkey hen does not come off at all, and in such case she should be taken off once a day, as otherwise she will die on the nest.

On coming off her nest the first thing a turkey hen does is to stretch her wings, step gingerly for a few steps, and then she often takes a running start and flies for a short distance. Exercise of this sort helps greatly to keep a sitting hen in good condition, and for this reason it is not well to confine her to a small space. A dust bath is greatly enjoyed by sitting hens and helps to keep them free from vermin. Whole corn is a good feed, and fresh water and grit should always be accessible.

Lice are a great annoyance to sitting hens and are one of the worst enemies of young poults. To prevent their getting a foothold, the hen should be dusted thoroughly with some good lice powder before she is placed on the nest, and then both the hen and nest should be similarly treated once a week for the first three weeks of the incubation period. The nesting material should be kept clean, and if the eggs become dirty they should be washed with a soft cloth dipped in lukewarm water. Just before the poults are to hatch, the old nesting material should be replaced with clean straw.

The incubation period of turkey eggs is 28 days. The first egg is usually pipped during the first part of the twenty-seventh day,

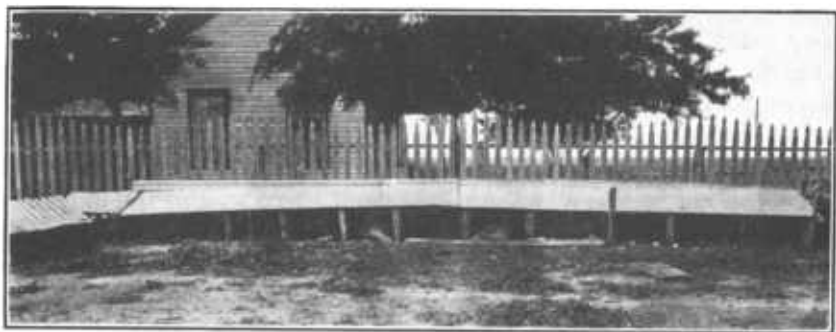


FIG. 12.—Long row of nests used by large turkey raisers for setting turkey hens.



the first poult hatched by the middle of that day, and the hatch completed at the end of 28 days, although in extreme cases all the poults are not hatched before the end of 30 days. Turkey eggs are tested for fertility and for dead germs, as a rule, on the tenth and twentieth days.

### BROODING.

The average number of poults raised under ordinary conditions is about 50 per cent of those hatched out, or about 7 poults for every turkey hen. By far the greater part of this loss occurs when the poults are quite young, that is, under a week old. Seldom are any lost after they are a month old, unless there is an outbreak of disease. The high mortality among young poults is mainly from the following causes:

- (1) Exposure to dampness and cold.
- (2) Improper feeding.
- (3) Close confinement.
- (4) Lice.
- (5) Predatory animals.
- (6) Inherent weakness, the result of carelessness in selection of parent stock.

With the exception of predatory animals all these causes are easily removed. Experienced and careful turkey growers are able to raise a much higher per cent of the poults hatched.

As soon as the hatch is completed and the poults begin to run around outside the nest the hen and brood are ready to be removed to the coop provided for them. The coop should be built to keep out rain; it should be well ventilated, capable of easy movement, and be sufficiently roomy for a turkey hen to stand erect and walk about (fig. 13). There should be a separate coop for each hen and brood, and the coops should be scattered about the farm in such places as are easily drained and where natural feed, such as tender, green vegetation (grass, clover, alfalfa, and other green feed), and insects, particularly grasshoppers, can be found. By moving the coop every day the ground will be kept clean and opportunity will be given the mother hen and poults to pick up fresh, green feed inside the coop. Plenty of exercise is essential if the poults are to thrive. At all times, when rain or dampness does not prevent, the poults should be allowed to run in and out of the coop at will. Too much stress can not be given to the necessity of exercise, and the only way to provide for this is to allow the poults at every possible opportunity to range for feed outside the coop. During a long-continued rainy season it is better to allow them to run out of the coop whenever it is not actually raining, even though the grass is somewhat damp. By confining the mother hen to the coop she will always be ready

to hover the poults whenever they run to her, which they will do if they become chilled. The greatest care should be taken to keep the interior of the coop dry, and for this reason it is advisable to choose a sandy slope where the water runs off quickly and where there is also protection from heavy rains. If necessary, the mother hen can be confined to a roomy coop for a week or more, provided she is properly fed and watered, and the coop moved to fresh ground every day.

If the weather is warm and dry, as frequently happens when the poults are hatched late in the season, no shelter is required, as they do better in the open: but it is advisable to keep them within a fenced inclosure for the first 3 or 4 days until they are strong enough to follow the mother. Weather conditions being favorable, the hen and brood can be given free range after the third or fourth day, but care should be taken to keep them out of heavy dews and to protect them from rain for the first 2 or 3 weeks. After this, early morning dews or light showers followed closely by warm sunshine will do little harm, as the poults soon become warm and dry. If cold, damp weather sets in, however, they will need to be kept in dry

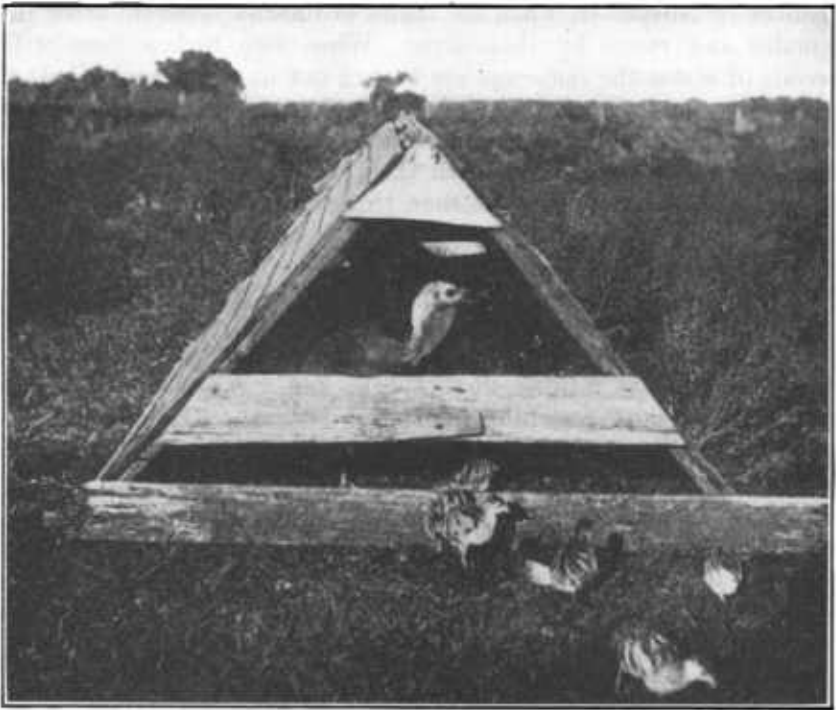


FIG. 13.—Turkey hen confined to a coop; the poults allowed to run in and out.

quarters, for nothing is more fatal to young poults than wet and cold.

#### THE TURKEY HEN AS A MOTHER.

For poults the turkey hen is the best mother that can be found. She knows their needs and can talk to them in a language that they soon learn to understand. At the approach of any danger she gives a low, warning note that sends them scurrying in every direction for a weed or patch of grass where they can lie flat on the ground safely hidden from view. While on free range, she keeps her brood together by talking continuously in a contented, purring tone so that the poults always know where she is. When her poults become widely separated, or if some become lost, and she hears their "peep, peep," she calls them with the characteristic yelp heard so frequently during the laying season. Now and then, while the poults are but a few days old, she catches a grasshopper and calls the poults to come and get it. They soon learn to find their own feed, however, and range out ahead of the mother hen in search of whatever they can find.

Young turkeys usually remain with the mother hen until about October or November, when the males ordinarily separate from the females and range by themselves. When two turkey hens with broods of about the same age are turned out on free range together they will remain in one flock, and as this makes it easier to hunt them up and care for them it is advisable to turn out 2 or 3 hens with their broods together when they are given free range. It is not a good plan to have more than this number of young poults in one flock, however, as they may all try to crowd under one or two hens to be hovered.

#### FEEDING THE POULTS.

Improper feeding, combined with close confinement, has been the cause of many failures in turkey raising. When on free range the poults are busy searching for feed most of the day. Here there is no overfeeding and lack of exercise, such as the poults are often subjected to by those ignorant of their wants. If the range is plentifully supplied with green feed, grasshoppers, and other insects, and if the weather is favorable, then the best plan is to allow the poults to feed themselves. It is usually advisable, however, to have them come home at night, and if driven up and fed at a certain place every night they will soon learn to come up themselves.

When, on account of rainy weather or unfavorable range conditions, it is advisable to raise the poults by the coop method, more care must be given to their feeding. For the first two days after hatching, poults require no feed, the yolk of the egg which they

absorb before breaking out of the shell being sufficient to maintain them for that length of time. Access to clean drinking water and a little coarse sand and green feed to pick at is all that is needed until the third day. Beginning with the third day, the poults should be fed according to the quantity of natural feed they are able to pick up outside the coop. They should always be hungry. To feed all they will clean up several times a day removes the cause of searching for feed, so that little exercise is taken and indigestion is sure to result. When natural feed is scarce, or when the poults have to be kept from ranging outside, they should be fed lightly about five times a day. If allowed to run outside the coop where they can find insects, seeds, and green feed, they need not be fed oftener than two or three times a day.

Successful turkey raisers use many different kinds of feed, some of the most common being as follows:

(1) Hard-boiled egg chopped fine and corn-bread crumbs for the first week, and then whole wheat and hulled oats.

(2) Stale bread, soaked in milk and squeezed dry, for the first few days, and then common chick feed.

(3) Clabbered milk seasoned with salt and pepper, corn-bread crumbs.

(4) Equal parts "pinhead" oats, whole wheat, and cracked corn.

(5) Cracked wheat.

(6) Corn meal and wheat bran mixed in the proportion of 3 to 1 and baked into bread.

(7) Bran or middlings one-half, cracked Egyptian corn one-quarter, wheat and hulled oats one quarter.

In addition to the above, skimmed milk and buttermilk are quite often fed, with excellent results. A good plan is to keep the milk in front of the poults during the morning and water during the afternoon. If grit and green feed can not be picked up outside the coop, they must be provided in some other way. Chopped onion tops, lettuce leaves, dandelion leaves, and alfalfa make excellent green feed. Grit can be furnished in the form of coarse sand.

While confined to the coop the mother hen should be fed twice a day on a mixture of grain, such as equal parts corn, wheat, and oats, and green feed, while water and grit should be kept before her all the time. An occasional feed of meat scrap or fresh, lean meat is greatly relished and helps to keep her in good condition. In feeding the hen and poults, it is advisable to feed the latter outside the coop and the former inside, in order to prevent her from eating the feed intended for the poults. It is seldom necessary to keep the hen and poults confined for more than a few days at a time, and the sooner all can be given free range, the better. Whether or not they should

be put into the coop at night after ranging during the day depends on the weather and the danger from predatory animals.

#### THE AGE AND SEX OF TURKEYS.

At the age of 4 weeks there is no trace of red on the heads and necks of the poults, but at 5 weeks the caruncles or comb begin to form, and when 6 weeks of age a trace of red can be seen forming in the caruncles under the feathery down of the neck; this down is gradually shed from the under part of the neck. At 7 weeks the red can be seen at some distance on the under part of the necks of males, but is not plainly visible on females until about the eighth week. It is only by careful comparison, however, that the sex of young turkeys can be distinguished before they are 3 months of age, at which time a very small, fleshy protuberance appears on the breast of the male, emerging from which the beard or tassel can be seen about 2 weeks later. At the age of about  $3\frac{1}{2}$  months the beard begins to grow from the breast of the male turkey and at 1 year of age it is from 3 to 5 inches long, becoming longer each year. When about a year old turkey hens begin to grow beards. The beard of the tom is much longer and coarser than that of the hen, however, and his feathers stop far down on the neck, while in the case of the hen there is a light growth extending in a rather narrow strip along the back of the neck to the top of the head. The "dewbill," or fleshy appendage just above the beak, is larger and more elastic in the male than in the female. Young toms under 1 year of age have only a short, blunt knob on the inside of the shank, which, as the bird grows older, develops into a stout spur, while in the hen only a rudimentary spur or small button is found.

#### REARING THE YOUNG TURKEYS.

When about 6 weeks old the young turkeys are old enough to go to roost. Practically all turkey raisers allow the birds to roost in the open trees or on fences or other roosts especially provided for them. In sections where high winds prevail it is customary to build the roosts next to a barn or shed, where there is some protection; when this is done posts are driven into the ground and poles laid across them 4 or 5 feet from the ground. By driving them to the roosting place and feeding them there every evening just before dark, young turkeys can be made to roost wherever desired. For the first few times it is sometimes necessary to keep them under the roost until dark, but they will finally fly up, and after a week or so will no longer have to be driven, but will come up every night to be fed and to roost.

During the summer and early fall turkeys can find an abundance of feed on the average farm. Grasshoppers and other insects, weeds

and grass seeds, green vegetation, berries, and grain picked up in the fields all go to make up the turkey's daily ration. When this natural feed is plentiful, very little need be added until fattening time, except for the purpose of bringing the turkeys every night to roost and to keep them from straying from home. For this purpose one feed of grain every night just before roosting time is sufficient.

One of the greatest difficulties with which turkey growers have to contend is to keep their flocks from wandering over too wide an area and invading neighboring farms. To some extent, feeding heavily night and morning reduces the area over which turkeys range, but even then they often go too far. When trouble of this kind occurs, the most effective plan is to drive them into an inclosure, such as is described for a breeding pen, and keep them there until about noon. In warm weather turkeys do most of their ranging early in the morning and by 9 o'clock they are usually as far from home as they will get during the day. As soon as the sun becomes very warm they spend most of their time in the shade until 3 or 4 o'clock in the afternoon, when they begin moving toward home, ranging for feed along the way. If the weather is not too warm they do not spend so much time lying in the shade, and consequently range over a larger area and may keep moving away from home until noon. By feeding in the pen every morning they soon learn to go there on coming down from roost and no time is lost in penning them. If they fly out of the pen after being fed, the flight feathers from one wing should be clipped.

#### FATTENING FOR MARKET.

In fattening turkeys for the market an excellent plan is to begin about October 1 to feed night and morning, not feeding enough at a time but that the birds go away still feeling a little hungry, and gradually increasing the quantity until they are given all they will clean up three times a day during the week before marketing. By the latter feeding is meant that they are fed until they leave the feed and walk away. Some turkey raisers feed wheat and oats during the first part of the fattening season, gradually changing to corn as the weather becomes cooler. The majority, however, begin feeding heavily on corn about November 1, and since turkeys are not accustomed to such heavy feeding, scours often result, especially if new corn is used. New corn can be fed safely if the turkeys are gradually accustomed to it by feeding lightly at first and more heavily afterward.

Confining turkeys during the fattening season to prevent their using so much energy in ranging has been tried to some extent, but with very little success. Those confined to a pen eat heartily for 2 or 3 days, but after this they lose their appetite and begin to lose flesh

rapidly. On allowing them free range again, they pick up rapidly and are soon eating as heartily as ever. The better method is to allow them free range, as it keeps them in good, healthy condition, and they are always eager to be fed.

Nuts of various kinds are a natural fattening feed picked up by the turkeys on the range. Of these beechnuts, chestnuts, pecans, and acorns are those most commonly found by them. Many turkey growers in Texas depend solely upon acorns for fattening their turkeys, and when the mast is plentiful the birds are marketed in fairly good condition.

### CAPONIZING.

Turkey males are harder to fatten than the females, and they are especially hard to get in good market condition by Thanksgiving. Being much larger than the females, they require a great deal of feeding to cover their frames with thick layers of juicy meat, and in addition to this it is the nature of the young males to separate from the remainder of the flock about October or November and range over a wider area than the females. Very little has ever been done in the way of caponizing turkeys, but when it has been tried the capons were found to be much quieter in disposition and less liable to range over a wide area than the toms, and this character should be of considerable advantage in getting them in condition for the market.

### MARKETING.

The marketing season for turkeys is very short, running from the middle of November to the latter part of December. Most turkey raisers sell their birds alive to poultry dealers, who either dress them or ship them alive to city dealers. Farmers near the city markets, and particularly those in the Middle Atlantic and New England States, often dress the turkeys and either sell them direct to the consumer or to city dealers. In some sections shortly before Thanksgiving there is held what is known as turkey day. On the day before this event every turkey grower in the neighborhood kills and dresses his turkeys and the following morning brings them into town, where they are bid on and purchased by whatever buyers choose to be there, the birds going to the highest bidder. (See fig. 14.)

In sections in which turkeys are grown in large numbers, as in Texas, dressing plants have been built by poultry dealers, who buy the birds alive and dress them for the various city markets. In such cases practically all the turkey raisers sell to these dealers, who often send buyers out into the country to gather up a drove of several hundred birds by stopping at each farm as they pass, weighing whatever turkeys the farmer may have to sell, and adding them to those

already collected. Six or eight men can drive a flock of 1,000 turkeys 10 or 12 miles a day. This method of marketing is shown in figure 15. As soon as possible after the turkeys are received at the dressing plant they are killed, dry-picked, cooled, and packed in barrels or boxes for shipment.

In killing and dressing turkeys on the farm they should first be deprived of feed for 24 hours, but given plenty of fresh, clean water in order to clean the crop and intestines of all feed. When ready to kill, the bird should be hung up by the feet; holding the bird in one



FIG. 14.—Marketing dressed turkeys on "turkey day" (Lisbon, N. Y.).

hand a sharp, narrow-bladed knife is used to sever the veins in the throat by making a small cut inside the mouth on the right side of the throat, at the base of the skull. After making this cut and bleeding begins, the knife is thrust up through the groove in the roof of the mouth and into the brain at the back part of the skull. On piercing the brain the bird gives a peculiar squawk, the feathers are loosened by a quivering of the muscles, and death is instantaneous. In dry picking the feathers should be plucked immediately, and if the bird has been properly stuck they come out very easily. The tail and large wing feathers are removed first, after which the body feathers are pulled out. When the turkeys are to be marketed locally



or are to be shipped but a short distance they are cooled to a temperature of about 35° F. by hanging in the open air, provided the weather is cool enough; otherwise they are plunged into ice water and kept there until thoroughly cooled. After cooling they are packed undrawn in boxes or barrels. It is inadvisable for the producer without proper refrigerating facilities to ship dressed turkeys, as losses from improper cooling and from their being exposed to warm weather during transit are liable to occur. Aside from this it is seldom profitable to ship turkeys any great distance except in carload lots; when this is done the turkeys are cooled to 32° F., packed in boxes or barrels, and shipped in refrigerator cars.

### DISEASES OF TURKEYS.

Turkeys are subject to most of the diseases and ailments affecting fowls. Of these the most common diseases are blackhead, chicken



FIG. 15.—Driving turkeys to market, Glasgow, Ky.

pox (sore head), and roup. Limber neck and impaction of the crop are noninfectious ailments quite often found among turkeys.

Of the parasites lice are the most injurious, especially among young turkeys, and unless some effective means has been taken to destroy them they can usually be found on every turkey in the flock.

### BLACKHEAD.

Of the infectious diseases, blackhead is the most destructive among turkeys. This disease first became serious in the New England States many years ago; it is now found to a greater or less extent throughout the Middle West, and occasionally in the South and on the Pacific coast. It is notable that whenever the climate and range conditions are such as to permit of the turkeys foraging for most of their feed from the time they are hatched until they are mar-

keted, cases of blackhead are infrequent. Blackhead occasionally affects grown turkeys, but it mostly occurs among young turkeys between the ages of 6 weeks and 4 months.

The symptoms of blackhead are such that unless the bird is killed and an examination of the internal organs made it is difficult to tell whether the disease is blackhead or some other ailment. The bird drinks a great deal, but refuses to eat and grows steadily weaker until its death, which usually occurs a few days or a week after the sickness is first noted. Diarrhea commonly occurs and the droppings vary in color from white to brown, but are usually a bright yellow. The head of the turkey sometimes turns dark and it is from this symptom that the name blackhead originated; this is an unfortunate term, as the head often does not turn dark, and even though it does it merely indicates that the bird is sick from some ailment that may or may not be blackhead. On opening a turkey that has died of blackhead, one or both of the ceca or "blind guts" are found to be enlarged and plugged with a cheesy material and the liver is more or less covered with spots varying in color from grayish white to yellow.

No positive cure for blackhead has been found. As in the case of all other infectious diseases, the sick bird should immediately be removed from the flock to prevent a further spread of the disease, and if very sick it is best to kill it and burn the body. Clean out the roosting place and spread lime in places most frequented by the turkeys. Keep a disinfectant in the drinking water; potassium permanganate is most often used, a sufficient quantity of the crystals being added to give the water a wine color, which, for every gallon of water, will take about as much of the chemical as can be placed on a dime. If the turkeys are being fed heavily, their ration should be reduced, as overfeeding predisposes to the disease. The feeding of sour milk has been found of advantage in keeping turkeys in good health and in reducing the activities of the organism causing blackhead. Free range and care not to overfeed are most important.

#### CHICKEN POX.

Chicken pox (sore head) is quite often found among turkeys, particularly when they are raised with fowls. It is characterized by scabby eruptions about the head and spreads quite rapidly from one bird to another. The affected birds should be removed from the flock, the scabs soaked off with warm water, and the sores washed with an antiseptic, such as a 2 per cent solution of carbolic acid or of potassium permanganate.

#### ROUP.

Roup is more common among fowls than among turkeys, but the latter are sometimes affected, particularly when they are exposed

to drafts and dampness. The first symptoms of roup are those of a common cold, and later a swelling usually develops just below the eyes, giving rise to the name "swell head." Roup is very contagious, and any infected bird should be isolated and the mouth and nostrils washed out with an antiseptic; if there is a swelling under the eyes, it should be opened and the material that has formed there squeezed out; also, the cavity should be washed with an antiseptic.

In most cases it is advisable to kill any bird sick with anything of a contagious or infectious nature rather than to attempt treatment and run the risk of spreading the disease.

#### LICE.

Lice are among the most important causes of the high mortality among young poults, those badly infested becoming gradually weaker and weaker until they die. Head lice cause most of the trouble and are found close to the skin upon the top of the head, above and in front of the eyes and under the throat. Small white lice are also found along the wing bar among the quills of the feathers and occasionally are found below the vent. By dusting the hen when she is set with some good lice powder it is a very easy matter to prevent lice from getting a foothold among the poults. If this is not done, the poults are almost certain to have lice. The poults should be examined carefully every few days and if lice are found about the head a small quantity of lard should be rubbed over the affected parts. This kills the lice by closing their breathing pores. The lice found among the quill feathers along the wing bar and below the vent are more active than the head lice and do not remain so close to the skin. Should body lice be found, the poults should be dusted carefully under the wings and below the vent about once a week until the pests are exterminated.

#### LIMBER NECK.

Limber neck is characterized by a paralysis of the muscles of the neck, caused by the absorption of poison from the intestines. The presence of these poisons is usually due to eating decayed meat or moldy grain, or it may be attributed to indigestion or intestinal worms. A tablespoonful of castor oil to which 15 drops of oil of turpentine have been added should be administered.

#### IMPACTION OF THE CROP.

Impaction of the crop is caused by eating indigestible substances, such as feathers, and thus preventing the feed from passing through. The crop can usually be emptied by first giving a teaspoonful of sweet oil and then working the contents of the crop with the fingers up through the gullet and out of the mouth, the bird being held with its head down.

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